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Filed: September 11, 2001
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REMARKS

Claims 1, 6, 13-14, 17, 20-22 and 24-29 stand rejected under 35 U.S.C. § 102(e) as being anticipated by United States Patent No. 6,109,984 to Tsou ("Tsou"). Claims 2 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsou in view of United States Patent No. 5,630,737 to Dupont ("Dupont"). Claims 3-4, 9-12, 15-16 and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsou in view of United States Patent No. 4,687,273 to Pranch ("Pranch"). Claims 5 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsou in view of United States Patent No. 5,422,438 to Lamome ("Lamome"). Claim 8 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsou in view of U.S. Patent No. 5,320,565 to Polidori ("Polidori"). Applicant submits that the present rejections should be withdrawn for the reasons discussed below.

Applicant notes that the present rejections correspond to the previous rejections although the Examiner is now citing element 54 of the Tsou reference as corresponding to a "socket" rather than element 57 as was cited in the previous action. Accordingly, only the newly raised issues will be addressed in this response to facilitate the Examiner's reconsideration of the rejections. However, Applicant's previous responses mailed May 12, 2003 and October 7, 2003 are incorporated herein by reference as if set forth in their entireties.

As an initial matter, Applicant fails to understand the change in the rejection to cite item 54 of Tsou as the socket, particularly as the Response to Arguments section at paragraph 9 of the Final Action refers to the "cavity (57)" with reference to the conductive bar 54 of Tsou. Applicant submits that the change from item 57 to item 54 appears to make no substantive change to the rejections and, therefore, the arguments provided previously by Applicant still fully apply to the present rejections. The remaining comments herein will be addressed to the Response to Arguments section of the Final Action. Before responding to the particular points in the Final Action, Applicants provide the following general comments on the Tsou reference.

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The Tsou Reference

In order for the examiner to more fully comprehend the disclosure of Tsou at Col. 7, lines 1-25, we set out below the content of Tsou at Col. 7, lines 1-25, in its entirety, accompanied by an explanation of what we believe is clearly and unambiguously disclosed by each part of that passage.

Tsou discloses at Col. 7, lines 1-15, a "first repair mode" of the described cable connector:

Alternatively, in case that the plug is damaged to such an extent that it is not possible to intactly withdraw the conductive pin 58, one may simply cut off the wire 68 to separate the wire 68 from the plug and then expose and insert the conductive core 70 of the wire 68 into a new plug of the present invention. A bolt (not shown) is then tightened in the inner threading 63 of the radial hole 62 to secure the conductive core 70 of the wire 68 to the conductive bar 54 and establish an electrical engagement between the conductive core 70 of the wire 68 and the conductive bar 54. It should be noted that in this case that the conductive core 70 of the wire 68 is fixed to the conductive bar 54 by means of a bolt, the conventional plug (renovation plug) that is shown in FIG. 2 may be adapted to replace the plug of the present invention.

(Tsou, Col. 7, lines 1-15)(emphasis added).

As shown by the highlighted portion, the first repair mode is clearly concerned with the case where it is not possible to intactly withdraw the conductive pin 58. These actions necessarily leave the conductive pin 58 engaged with the damaged plug, so that the conductive core 70 of the separated wire 68 may be exposed and inserted into a new plug. There is no mention of the exposed conductive core 70 being engaged with a replacement conductive pin 58. Instead, Tsou is quite clear that the exposed conductive core 70 is engaged with a new plug, stating that a "bolt (not shown) is then tightened in the inner threading 63 of the radial hole 62 to secure the conductive core 70 of the wire 68 to the conductive bar 54 and establish an electrical engagement between the conductive core 70 of the wire 68 and the conductive bar 54." (Tsou, Col. 7, lines 6-10).

Clearly, in the first repair mode, it is only the exposed conductive core 70 of the wire 68 that is secured to the conductive bar 54 using a bolt. In particular, Tsou states it "should be noted that in this case that the conductive core 70 of the wire 68 is fixed to the conductive bar 54 by means of a bolt, the conventional plug (renovation plug) that is shown in FIG. 2

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may be adapted to replace the plug of the present invention." (Tsou, Col. 7, lines 11-15).

The first repair mode, therefore, results in an arrangement that is essentially the same as the prior art arrangement illustrated in Figure 2. In other words, the first repair mode results in an arrangement that does not include a conductive pin 58, and so the new plug may be conventional in form.

Tsou discloses at Col. 7, lines 16-25, a "second repair mode" of the described cable connector:

On the other hand, if only the cable is damaged, but the plug is not, then a slender tool may be used to separate the conductive pin 58 from the plug and the plug may be re-used by for example inserting another conductive pin having a wire attached thereto into the plug or alternatively, by inserting the conductive core 70 of a wire 68 into the conductive bar 54 of the plug and securing the conductive core 70 to the conductive bar 54 by means of a bolt in which case the plug of the present invention serves as renovation plug.

In this case, the plug is not damaged, and the conductive pin 58 that is engaged with the damaged wire of the cable can be intactly withdrawn from the plug. The undamaged plug may then be re-used with an undamaged wire and its associated conductive pin 58. As stated in Tsou, such a replacement is "by for example inserting another conductive pin having a wire attached thereto into the plug." (Tsou, Col. 7, lines 19-20). This example of re-use involves inserting another conductive pin 58, having an undamaged wire attached thereto, into the plug. There is no mention of a bolt being used, and indeed there is no need for a bolt to be used.

As an alternative, Tsou describes "inserting the conductive core 70 of a wire 68 into the conductive bar 54 of the plug and securing the conductive core 70 to the conductive bar 54 by means of a bolt in which case the plug of the present invention serves as renovation plug." (Tsou, Col. 7, lines 21-25). This example of re-use involves inserting the conductive core 70 of an undamaged wire into the plug, and securing the conductive core 70 to the plug using a bolt. There is no mention of the conductive core 70 being engaged with another conductive pin 58 before insertion. Indeed, in this case, the plug is said to serve as a renovation plug (*i.e.*, a plug of conventional form, as illustrated in Fig. 2) because the conductive core 70 is inserted into the plug without a conductive pin 58.

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Thus, Tsou discloses the use of a clamping bolt only where the exposed end of a conductive core is introduced directly into the plug, and not where the core is engaged with a conductive pin 58 that is inserted into the plug. In the latter case, a clamping bolt is not used. Instead, the pin 58 is retained in the plug by engagement of the barb 64 with the shoulder defined by the groove 60 (see *Tsou*, col.5, lines 44-49). If the conductive pin 58 is used, then a clamping bolt is not used, and the teaching of Tsou never leads to an arrangement in which a clamping bolt acts upon a conductive pin 58.

Response to Final Action Points

The Final Action asserts that Col. 7, lines 1-49 of Tsou "clearly discloses that the conductor (70) can be received in the cavity (57) and the bolt (Column 5, Lines 3-5) clamping the insert (58) and the conductor (70) against an opposing surface of the cavity (57)." The Final Action further states that the "fact that these features are met in a repair mode as mentioned in the Tsou reference does not preclude the claims from being anticipated." Final Action, p. 6. Applicant agrees that, if Tsou actually disclosed all of the recitations of the claims, the fact that such a disclosure was in a repair mode would not preclude an anticipation rejection. However, the Examiner appears to have focused on the repair mode distinction rather than the fact that, in the repair mode, Tsou describes an arrangement where the conductor 70 is clamped by the bolt without any insert 58 in the cavity 57.

The cited portion of Tsou, in its entirety, reads as follows:

Alternatively, in case that the plug is damaged to such an extent that it is not possible to intactly withdraw the conductive pin 58, one may simply cut off the wire 68 to separate the wire 68 from the plug and then expose and insert the conductive core 70 of the wire 68 into a new plug of the present invention. A bolt (not shown) is then tightened in the inner threading 63 of the radial hole 62 to secure the conductive core 70 of the wire 68 to the conductive bar 54 and establish an electrical engagement between the conductive core 70 of the wire 68 and the conductive bar 54. It should be noted that in this case that the conductive core 70 of the wire 68 is fixed to the conductive bar 54 by means of a bolt, the conventional plug (renovation plug) that is shown in FIG. 2 may be adapted to replace the plug of the present invention.

On the other hand, if only the cable is damaged, but the plug is not, then a slender tool may be used to separate the conductive pin 58 from the plug and the plug may be re-used by for example inserting another conductive pin having a

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wire attached thereto into the plug or alternatively, by inserting the conductive core 70 of a wire 68 into the conductive bar 54 of the plug and securing the conductive core 70 to the conductive bar 54 by means of a bolt in which case the plug of the present invention serves as renovation plug.

Thus, in view of the above description of the preferred embodiment of the present invention, the present invention provides a trailer connection cable plug structure which is capable to be used both in a cable manufacturing line and in a cable repairing workshop so that the trouble of the parts manufacturer in supplying different plugs to the cable manufacturer and the cable repair workshop is overcome. Furthermore, as discussed above, the cable plug structure of the present invention simplifies the manufacture of the trailer connection cable.

As mentioned previously, the present invention may be embodied in both a plug and a socket. The plug in accordance with the present invention has been discussed above. For a socket in accordance with the present invention, the first cavity of the conductive bar (reference numeral 54 above) of the plug may be simply eliminated and provided with a pin-like projection for insertion into the first cavity of the conductive bar of the plug. Or alternatively, a pin may be inserted into the first cavity of the conductive bar to serve as the pin-like projection. This is only a matter of design and manufacture so that there is no need to recite the structure discussed above for a socket in accordance with the present invention.

Tsou, Col. 7, lines 1-49 (emphasis added). Thus, the first repair mode, where the plug is damaged, is described as not using the pin 58 when inserting the core 70 and securing the core 70 with a bolt. In the second repair mode, where the plug is not damaged, two alternative approaches are provided. Either an undamaged pin can be used, in which case no suggestion is made to use a securing bolt, or the core 70 can simply be secured by a bolt as described for the first repair mode. Thus, none of the cited portion of Tsou describes securing the core 70 and the pin 58 in the cavity 70 with a bolt. Applicant submits that the rejections should be withdrawn as the Examiner's description of Tsou is contrary to the actual text of Tsou.

The Final Action further asserts that Figure 4 of Tsou discloses "the socket insert (58) having a diameter selected to reduce an effective diameter of the socket (54) to reduce eccentricity of positioning of the electrical conductor (70)." Final Action, p. 7. As to the assertion that the pin 58 is "selected to reduce an effective diameter," Applicant submits that the pin is simply a press fit into the cavity 57, and that the conductor 70, when used with the

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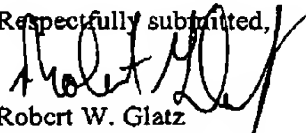
pin 58, merely clamps to a back end of the pin 58 as shown in Figure 4 of Tsou. Furthermore, with reference to reducing "eccentricity of positioning of the electrical conductor," again, as the conductor 70 is merely clamped at a back end of the pin 58, the pin clearly is not reducing a diameter of the cavity 57 to reduce eccentricity. In fact, at the clamped portion shown in Figure 4 of Tsou, the pin 58 is retaining the conductor 70 without reference to or use of the cavity 57. In other words, the pin 58 maintains the same relation to the conductor 70 before and after insertion of the pin 58 in the cavity 57 and the angle relationship of the clamping section 55 to the portion of the pin 58 inserted in the cavity 57 determines the positioning of the conductor 70 relative to the cavity 57.

The Final Action further asserts that Figure 4 of Tsou "clearly discloses the socket insert (58) being retained by the bore (62)." Final Action p. 7. In fact, Tsou states that the groove 60 provides such retaining by engaging the barb 64 and the hole 62 is used "to separate the conductive pin 58 out of the second cavity 57." Tsou, Col. 6, lines 52-59. Applicant notes that the "groove" is mis-numbered as item 62 at one point in this portion of Tsou.

Finally, Applicant notes that the Final Action never addresses the recitations of Claims 28 and 29 added by the last Amendment. These claims recite that the insert "has a diameter less than a diameter of the socket to allow the socket insert to be movably positioned in the socket." In contrast, the pin 58 of Tsou appears to be a press fit into the cavity 57.

Conclusion

Applicant respectfully submits that, for the reasons discussed above, the references cited in the present rejections do not disclose or suggest the present invention as claimed. Accordingly, Applicant respectfully requests allowance of all the pending claims and passing this application to issue.

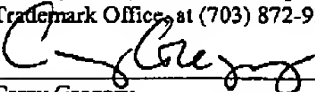
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